Application No. 10/082,603

AMENDMENT TO THE CLAIMS

A detailed listing of all claims that are, or were, in the present application, irrespective of whether the claim(s) remains under examination in the application are presented below. The claims are presented in ascending order and each includes one status identifier. Those claims not cancelled or withdrawn but amended by the current amendment utilize the following notations for amendment: 1. deleted matter is shown by strikethrough for six or more characters and double brackets for five or less characters; and 2. added matter is shown by underlining.

1.   (Previously presented) A method of optimizing a filter response of an arrayed waveguide grating, the method comprising the steps of:

a) measuring a respective phase error of a plurality of waveguide cores of an arrayed waveguide grating; and

b) adjusting a respective optical path length of the cores in accordance with the respective phase error of the cores by adjusting a respective refracting index of the cores, wherein the optical path length is controlled to less than ten nanometers.

2.   (Original) The method of claim 1 wherein the respective phase error is measured using a low coherent optical interferometer.

3.   (Original) The method of claim 2 wherein the respective phase error is measured to within nanometer resolution.

4.   (Original) The method of claim 1 wherein the respective refractive index is adjusted by using laser energy.

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5.   (Original) The method of claim 4 wherein the laser energy is ultraviolet laser energy.

6.   (Original) The method of claim 1 wherein the adjusting of the refractive index of the cores is used to equalize channel power of the arrayed waveguide grating.

7.   (Original) The method of claim 1 wherein the adjusting of the refractive index of the cores is used to compensate for dispersion within the arrayed waveguide grating.

8.   (Original) The method of claim 1 wherein the refractive index of the cores is adjusted within a grating area of the arrayed waveguide grating by using laser energy.

9.   (Previously Presented) A method for performing wavefront reshaping on an arrayed waveguide grating, the method comprising the steps of:

   a) performing phase error measurement of a plurality of waveguide cores of an arrayed waveguide grating; and

   b) adjusting a respective optical path length of the cores in accordance with the phase error measurement by adjusting a respective refractive index of the cores, thereby performing wavefront reshaping on the arrayed waveguide grating, wherein the optical path length is controlled to less than ten nanometers.

10.   (Original) The method of claim 9 wherein the phase error measurement is performed using a low coherent optical interferometer.

11.   (Original) The method of claim 9 wherein the phase error measurement has a resolution of one nanometer or less.

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12. (Original) The method of claim 9 wherein the respective refractive index is adjusted by using laser energy within a grating area of the arrayed waveguide grating.

13. (Original) The method of claim 12 wherein the laser energy is ultraviolet laser energy.

14. (Original) The method of claim 13 wherein the adjusting of the refractive index of the cores is used to equalize channel power of the arrayed waveguide grating.

15. (Original) The method of claim 9 wherein the adjusting of the refractive index of the cores is used to compensate for dispersion within the arrayed waveguide grating.

16. (Currently Amended) An arrayed waveguide grating having a laser-trimmed optimized filter response, comprising a plurality of waveguide cores with a grating, the respective refractive index adjusted in accordance with a respective phase error of the cores to produce the optimized filter response, wherein each core comprises an optical path length, and wherein the phase error of the filter corresponds with the optical path lengths of a plurality of cores differing is controlled to less than ten nanometers relative to the target grating performance.

17. (Original) The arrayed waveguide grating of claim 16 wherein each of the optical path length adjustment regions are configured to receive ultraviolet laser energy.

18. (Previously presented) A method of optimizing a filter response of an arrayed waveguide grating, the method comprising the steps of:

a) measuring a respective phase error of a plurality of waveguide cores of an arrayed waveguide grating; and

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b)   adjusting a respective optical path length of the cores in accordance with the respective phase error of the cores by adjusting a respective refracting index of the cores, wherein the respective refractive index is adjusted using pulsed laser energy with the number of pulses selected to yield a controlled adjustment of the optical path length to less than ten nanometers.

19.   (Previously Presented) The method of claim 18 wherein the laser energy is ultraviolet laser energy.

20.   (Previously Presented) The method of claim 18 wherein the adjusting of the refractive index of the cores is used to compensate for dispersion within the arrayed waveguide grating.

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